

Date: Monday, 23/02/2009 10:13:35 AM
 User: Julie Dawson

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : AFT TUBE ASSEMBLY
Job Number : 45962	
Estimate Number : 10699	
P.O. Number :	Part Number : D3391025
This Issue : 23/02/2009 S.O. No. :	Drawing Number : D3391 REV H
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : SKIDTUBES	Drawing Revision : H
Previous Run : 41762	Material :
Written By :	Due Date : 10/03/2009 Qty: 1 Um: Each
Checked & Approved By : <u>JLD 09.02.23</u>	
Comment : Est Rev B 06-02-07 ECN773 dwg rev. D EC Est Rev:C 06-03-28 Update Manuf. Instructions JLM est rev D 07.03.20 revF dwg EC est rev E 07.11.07 rev G dwg ecn 1053p EC verified by: DD Est Rev:F 07-11-13 ECN 1056 DD verified by: EC Est Rev:G 08-09-10 revH as per dwg DD verified by:EC	

SCRAP

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6014090	ALUMINUM EXTRUSION
-----	----------	--------------------



Comment: Qty.: 1.0000 f(s)/Unit Total: 1.0000 f(s)

ALUMINUM EXTRUSION

Pick:

Qty	Part Number	Description	Batch
1	D6014-090	Extrusion	B 32309

Identify as D3391-3

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------



Comment: MORI SEIKI CNC LATHE LARGE

Turn as per Folio FA599

Rev: H & Dwg D3391 Rev: AA

3.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
-----	-----	--



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

4.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
-----	-------	--------------------------------



Comment: HAAS

1-Machine as per Folio FA 599 Rev: ____ & Dwg D3391 Rev: ____

2-Deburr

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-025 PAR #: N/A Fault Category: Prod/x-tube NCR: Yes No DQA: D Date: 09/04/03
 Resolution: SCRAP Disposition: SCRAP QA: N/C Closed: D Date: 09/04/03

NCR: <u>45962</u> <u>NCR 09-028</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
9/2/25	2-0	inside bore that is @ 14.000" in depth was machined to 14.250". R.C. chips on face of	<u>QSI</u> 042 09-02-25	HIGH STRESS REGION. PART IS UNACCEPTABLE <u>Scrap and Destroy Qty 40</u> <u>Replace</u>	<u>QSI</u> 042 09-02-25 <u>09-02-26</u>	<u>S</u> <u>09/02/25</u>	<u>QSI</u> 042 09-02-25	<u>S</u> <u>09/02/25</u>
		chuck was not cleaned correctly. new train of P.M. on Lotte. first time.	<u>QSI</u> 042 09-03-02	<u>B# B30309</u> <u>NCR 09-028 raised</u> <u>for the below NC</u>	<u>QSI</u> 042 09-03-02	<u>D</u> <u>09/03/02</u>	<u>QSI</u> 042 09-03-02	<u>S</u> <u>09/03/02</u>
09.03.02	2	BORE IS 14.1" ON REPLACEMENT TUBE R.C. lack of attention.	<u>QSI</u> 042 09-03-02	<u>REPLACE</u> RECOMMEND SCRAP HIGH STRESS AREA	<u>QSI</u> 042 09-03-02 <u>09-03-02</u>	<u>S</u> <u>09/03-02</u>	<u>QSI</u> 042 09-03-02	<u>S</u> <u>09/03-02</u>

NOTE: Date & initial all entries

Date: Monday, 23/02/2009 10:13:36 AM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 45962

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

7.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

8.0

BENDING

BENDING MACHINE - SKIDTUBES



Comment: NC Bender

Form as per Dwg D3391 Using Bend Prog 3391025

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

10.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open Aft cap pilot hole to .208" as per Dwg D3391

2-Drill float bag holes using DT8809 as per Dwg D3391 (Holes marked "A" Only.

3-Drill wearplate holes as per Dwg D3391 using DT8878 (Mid Tube) & DT8217 Wearplate Jig .

*****Do Not Open To Finished Size*****

4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.

5-Open wearplate holes to 0.250" and c'bore as per dwg D3391

6-Open up all wearshoe , wearplate to 0.297" and float bag holes to 0.328" as per Dwg D3391.

7-Deburr

Tools: rill

SCVAP

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 23/02/2009 10:13:36 AM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

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Job Number: 45962

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

14.0

D36704200

SPACER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

SPACER

batch: _____

15.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Instal spacers as per dwg D3391

A/R Magnabond 6398 Batch: _____

exp. date : _____

cure time 12hrs as per QSI0015

SCRAP

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

17.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

START TIME: _____

OVEN TEMPERATURE: _____

FINISH TIME: _____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 23/02/2009 10:13:36 AM
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Drawing Name: AFT TUBE ASSEMBLY

Job Number: 45962

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

19.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Aft Cap

Pick:

Qty Part Number Description Batch

1 D2646 Aft Cap

20.0

D35371

Wearpad



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARPAD

21.0

D35377

Wearpad



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Wearpad

22.0

D35531

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Gasket

23.0

D35533

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Gasket

24.0

D36721

Phenolic Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

PHENOLIC WASHER

25.0

ALS41032130

Insert



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

INSERT

batch: _____

SCRAP

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 45962

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

or equivalent per
QSI 017

26.0

ALS41032225

Insert



Comment: Qty.: 12.0000 Each(s)/Unit Total : 12.0000 Each(s)
INSERT
or equivalent
Per QSI 017

27.0

AN3C4A

BOLT



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)
Bolt
Pick:
Qty Part Number Description Batch
2 AN3C4A Bolt

28.0

AN3C5A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Bolt

29.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
Inventory
Pick:
Qty Part Number Description Batch
2 AN960C10L Washer

30.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1
1-Install inserts as per Dwg D3391

2-Install Aft Cap as per Dwg D3391
A/ R Sikaflex-241/-291 _____
Sikaflex expiry date: _____

Scrap

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 45962

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

31.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

32.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

33.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



MF
09-03-31

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 45902
Description: Float Skidtube (412)		Part Number: D3391-3
Inspection Dwg: D3391	Rev: 1/1	Page 1 of 1

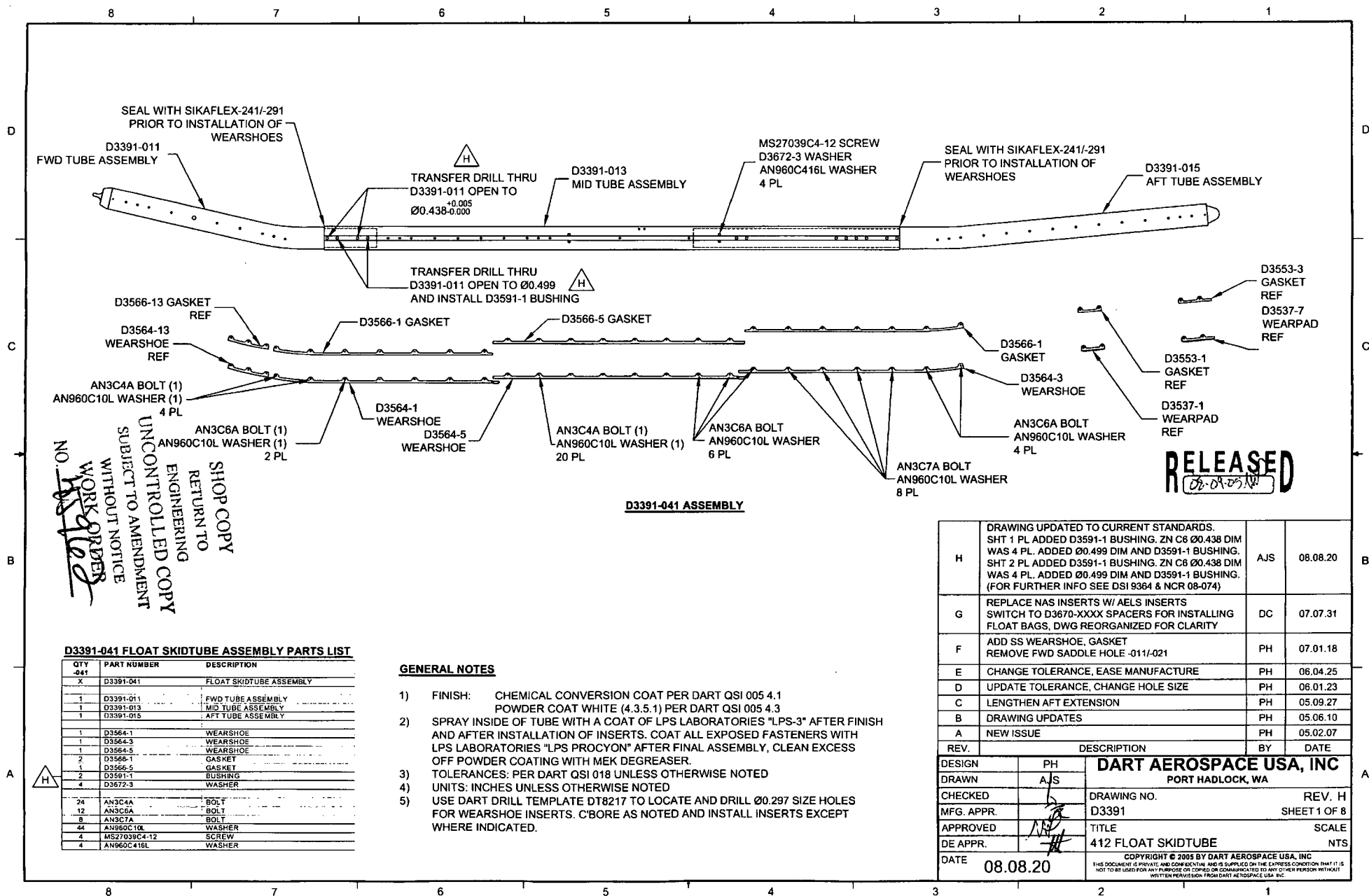
FIRST ARTICLE INSPECTION CHECKLIST

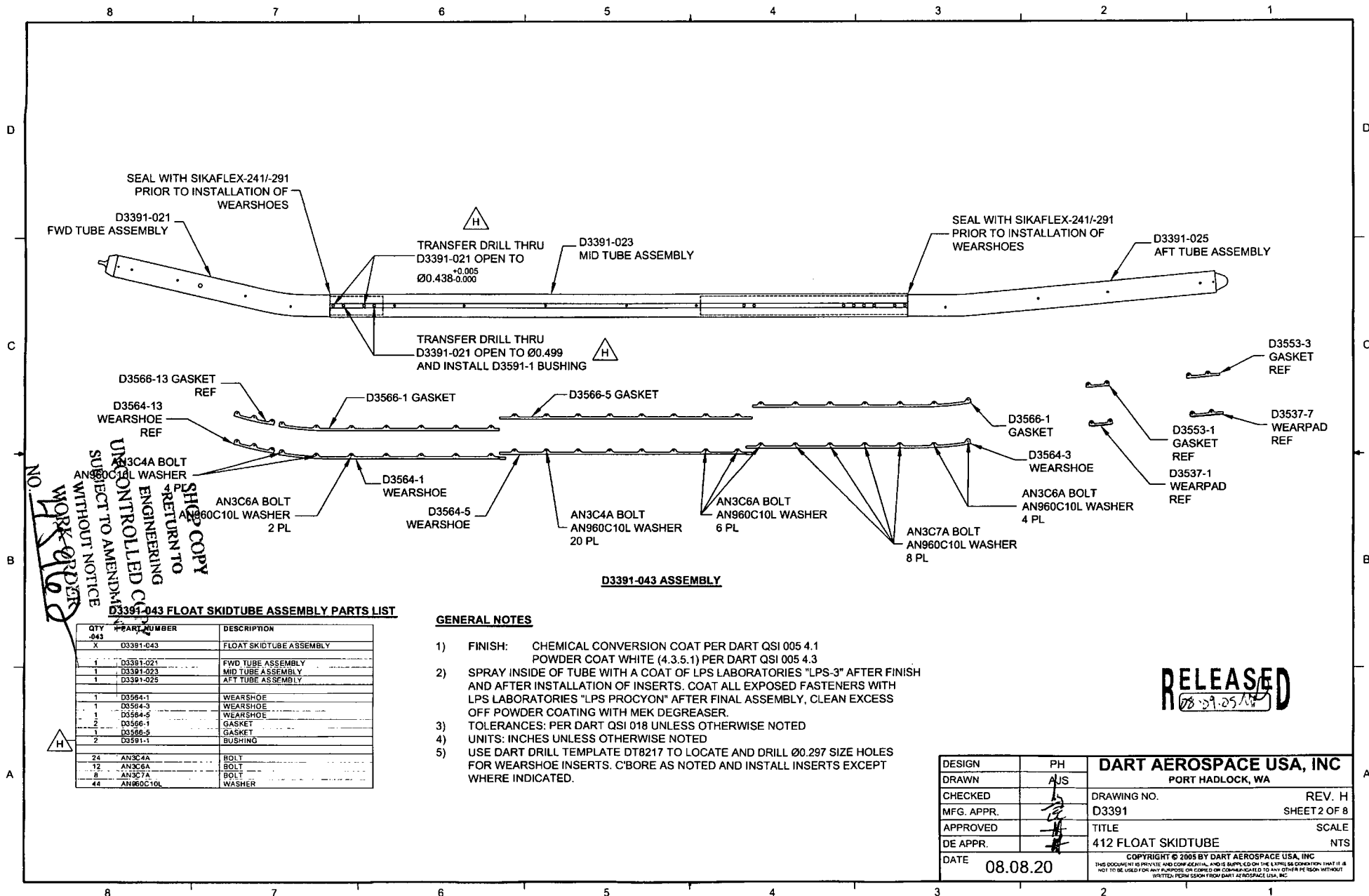
☒ First Article ☐ Prototype

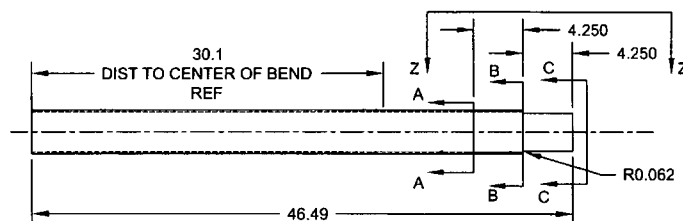
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000	✓	X	TAPE	MEASUREMENT ACTUALLY 14.1"
3.500	+/-0.010	3.500	✓			11-209-028
88.93	+/-0.030	88.930	✓			
44.995	+/-0.030	44.995	✓			
3.200	+/-0.010	3.203	✓			
1.526	+0.000/-0.030					
0.200	+/-0.010					
7.500	+/-0.010					
27.750	+/-0.010					
31.750	+/-0.010					
35.250	+/-0.010					
3.300	+/-0.010					
0.200	+/-0.010					
3.520	+/-0.010					
0.687	+0.010/-0.000					
R0.062	+/-0.010					
Ø0.484	+0.005/-0.001					

Measured by: G.M.	Audited by:	Prototype Approval:	N/A
Date: 09.02.20	Date:	Date:	N/A

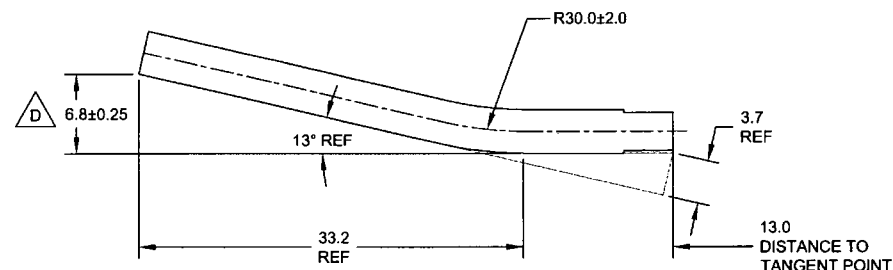
Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	



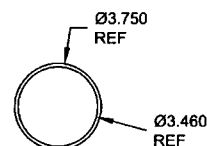




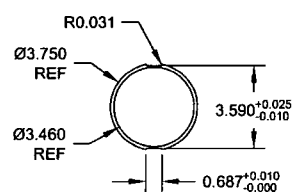
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



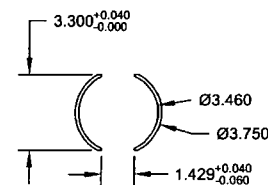
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



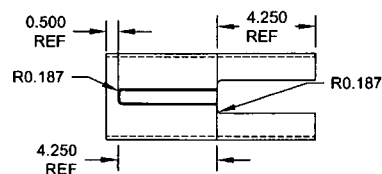
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X

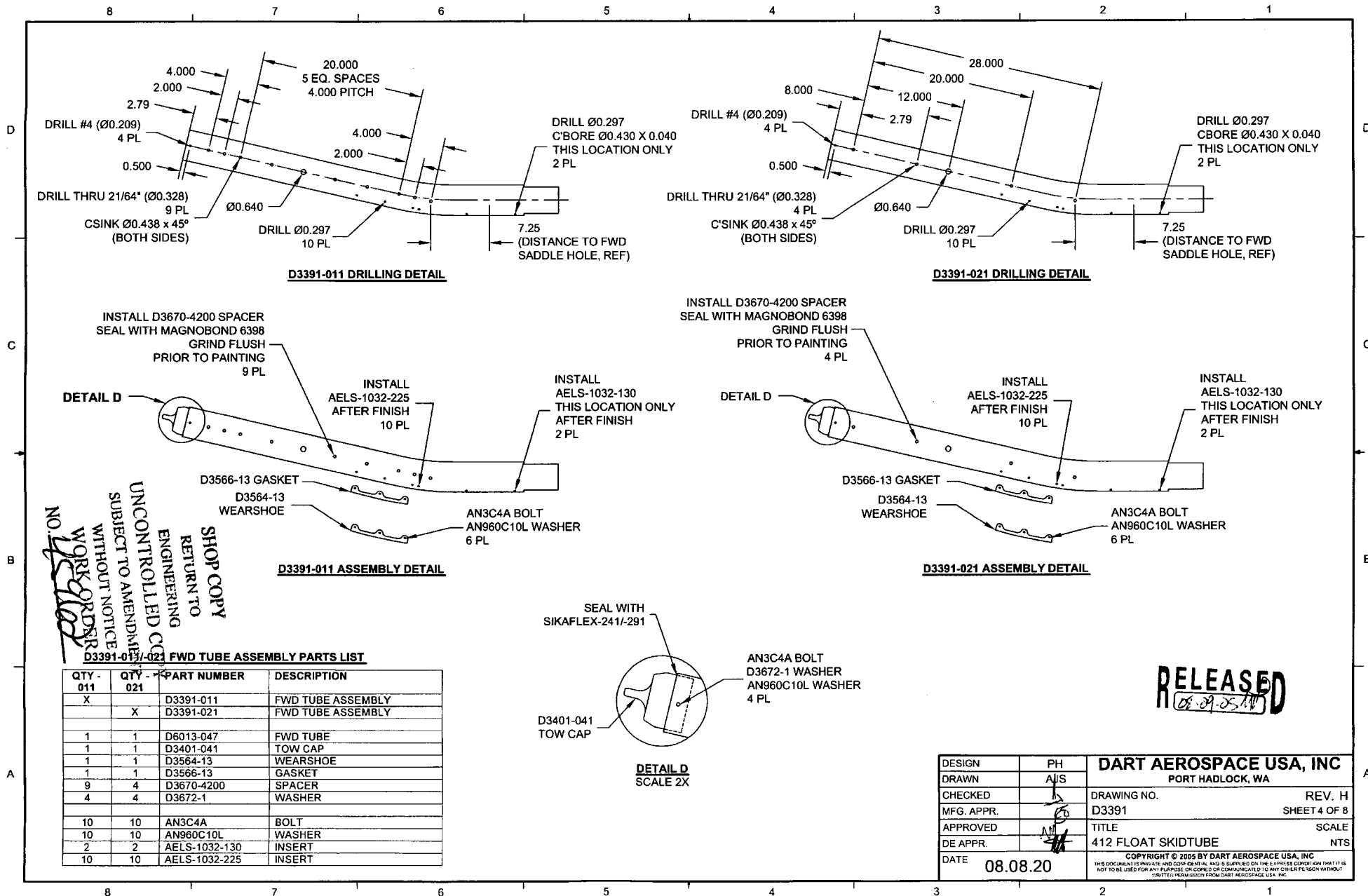


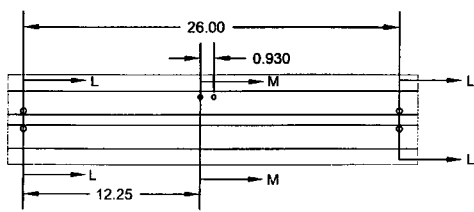
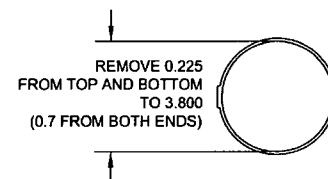
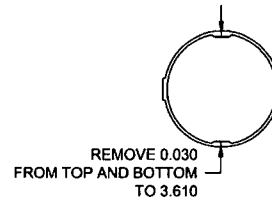
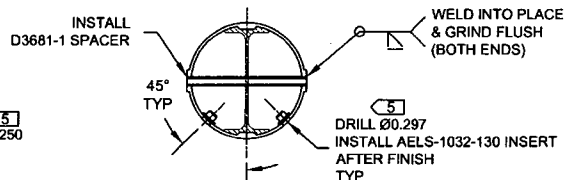
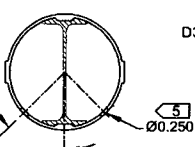
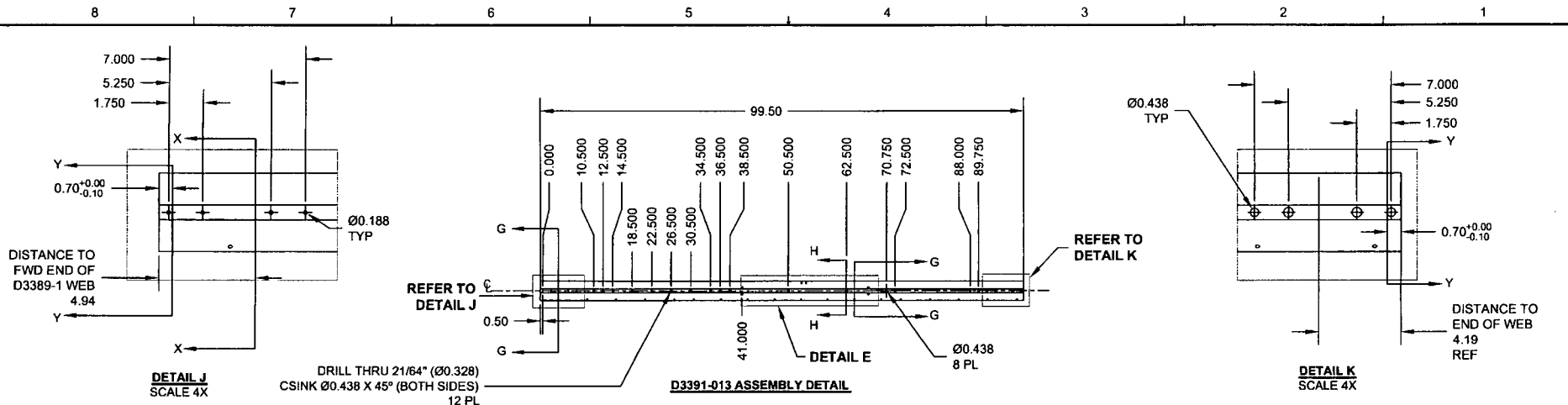
VIEW Z-Z
SCALE 2X

RELEASED
08-05-11

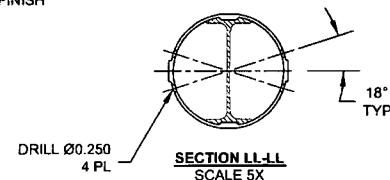
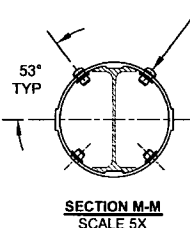
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 3 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	<small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMERCIALIZED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC</small>	

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WORK ORDER
NO. 459102





DETAIL E
SCALE NONE



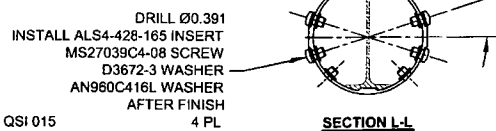
RELEASED

D3391-013 MID TUBE ASSEMBLY PARTS LIST

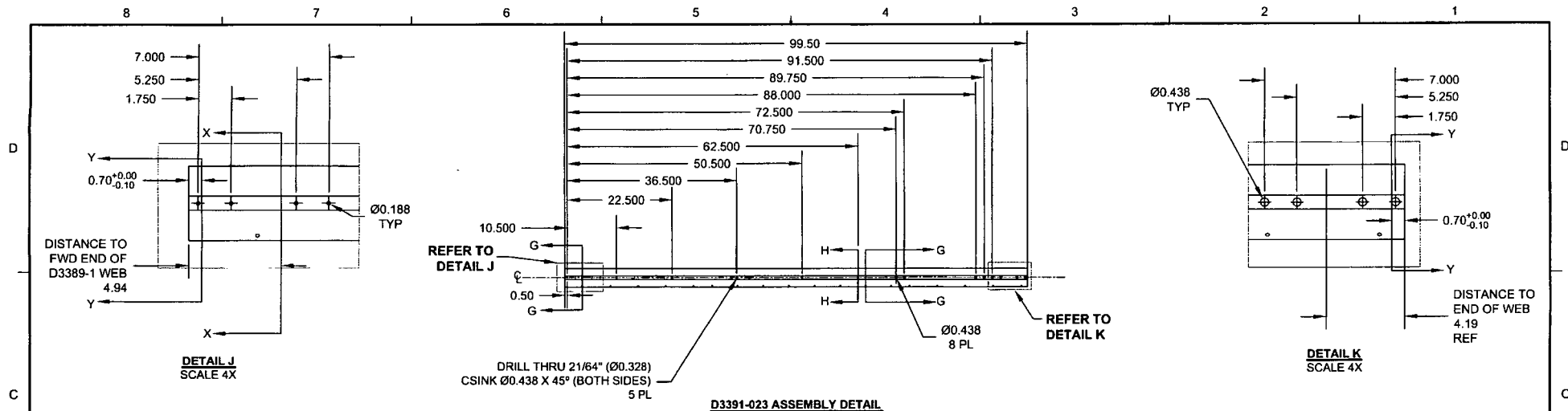
QTY	PART NUMBER	DESCRIPTION
1	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

D3391-013 MID TUBE ASSEMBLY

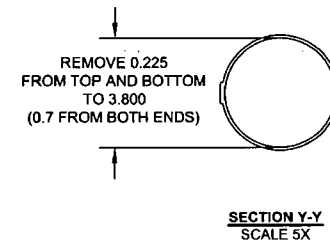
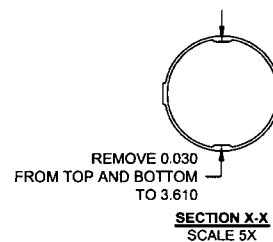
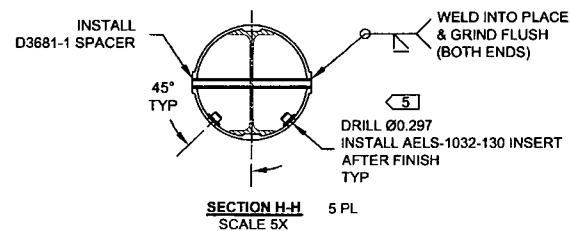
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-2411/291 PER QSI 015
- 3) WELDING: PER DART QSI 004



DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 5 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



NO. 11502
WORK ORDER
WITHOUT NOTICE
SUBJECT TO AMENDMENT
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY
SECTION G-G
SCALE 5X
Ø0.250



D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

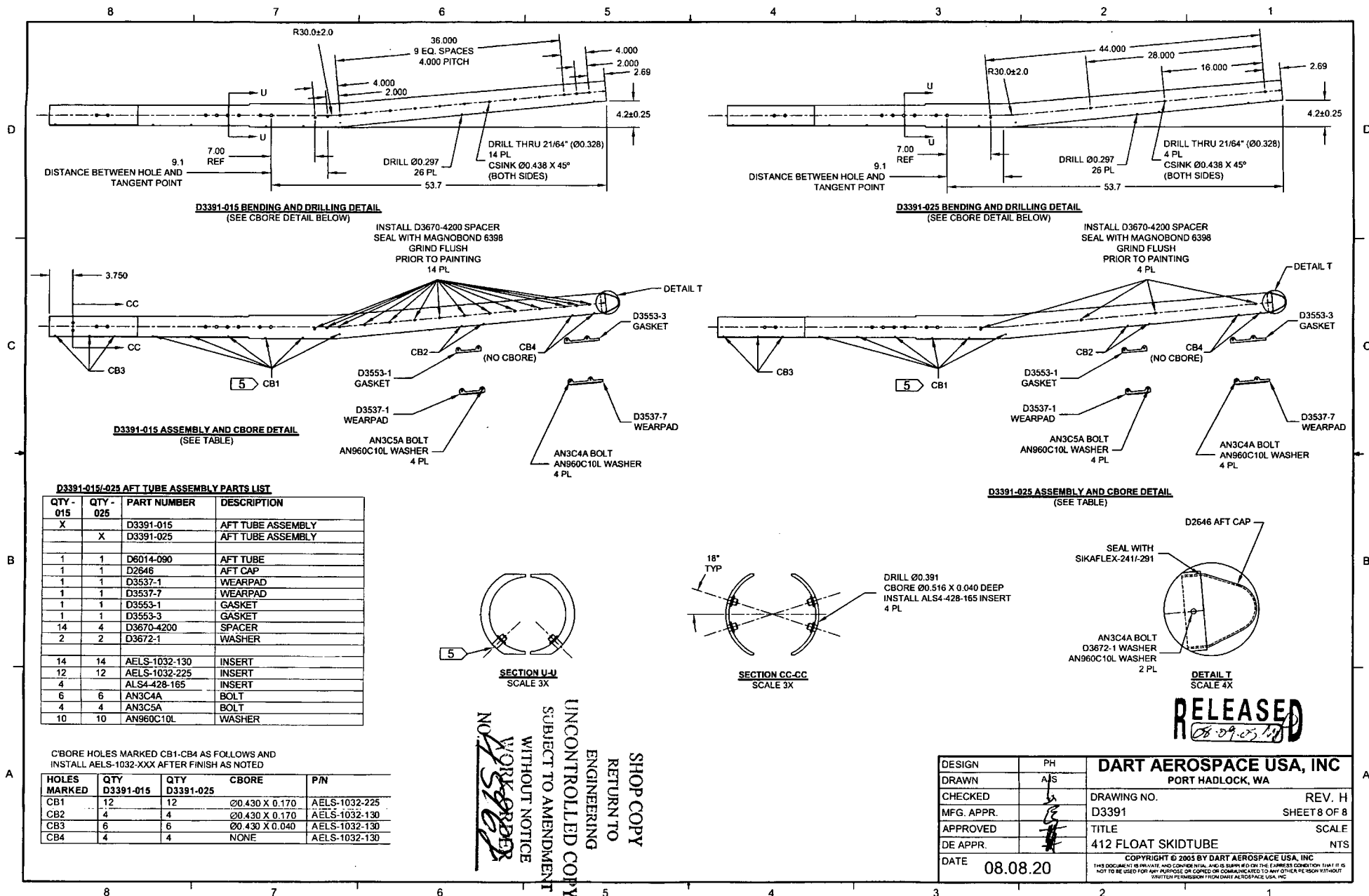
D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004

RELEASED
08-09-05-17

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	AJS	PORT HADLOCK, WA
CHECKED		DRAWING NO. REV. H
MFG. APPR.		D3391 SHEET 6 OF 8
APPROVED		TITLE SCALE
DE APPR.		412 FLOAT SKIDTUBE NTS
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08-09-2005